

UNIVERSITI TEKNOLOGI MARA

**THE EFFECTIVENESS OF *STROBILANTHES CRISPUS*
AS REPELLENT AGAINST *AEDES AEGYPTI***

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**Project Paper Submitted in partial fulfillment of the requirements for
the degree of
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Declaration by Student

Project entitled "The effectiveness of *Strobilanthes Crispus* as repellent against *Aedes Aegypti*" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Mr. Ahmad Razali Bin Ishak as Project Supervisor and Co Supervisor Dr. Hidayatul Fathi Othman. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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Abstract

The Effectiveness of Strobilanthes Crispus as Repellent Against Aedes Aegypti

Nur Azma Binti Abdul Wahab

The incidence of dengue fever increased dramatically and one of major public concern in Malaysia. In 2013, the number of dengue cases in Malaysia keeps increasing. A mosquito repellent is a substance applied to skin, clothing, or other surfaces which discourages insects (and arthropods in general) from landing or climbing on that surface. Mosquito repellent is use for adult *Aedes Aegypti* Mosquito which the vector that cause dengue fever. The use of natural repellency is more environmentally friendly. To determine the effectiveness of selected plant extractions of *Strobilanthes Crispus* as mosquito repellent against *Aedes Aegypti* mosquito. The essential oil of *Strobilanthes Crispus* was obtained by soxhlet extraction. The extraction is use with methanol solvent. The essential oil from extraction of *Strobilanthes Crispus* be divided into different concentration and test system based on Buecher.et.al. The 15 blood-starved female mosquito of *Aedes Aegypti* were removed into a test plastic cage (4 x 5 x 18 cm) and the essential oil of *Strobilanthes Crispus* was applied randomly onto five circles (29mm diameter) with marked area. Each marked areas on forearm was applied different concentration of $2.84 \mu\text{gcm}^{-2}$, $3.22 \mu\text{gcm}^{-2}$, $3.60 \mu\text{gcm}^{-2}$ and $3.79 \mu\text{gcm}^{-2}$. Extraction of *Strobilanthes Crispus* result in maximum repellency for 60s, 90s, 120s are 88.23%, 61.11% and 58.82% at concentration $3.79 \mu\text{gcm}^{-2}$ compare to repellency of DEET result in 100% protection at concentration of $1.89 \mu\text{gcm}^{-2}$. The ED_{50} of *Strobilanthes Crispus* for 60s, 90s, 120s are $3.37 \mu\text{gcm}^{-2}$, $3.61 \mu\text{gcm}^{-2}$ and $3.60 \mu\text{gcm}^{-2}$ while for DEET $0.42 \mu\text{gcm}^{-2}$, $0.30 \mu\text{gcm}^{-2}$ and $0.34 \mu\text{gcm}^{-2}$. For ED_{90} of *Strobilanthes Crispus* for 60s, 90s and 120s are $4.22 \mu\text{gcm}^{-2}$, $4.77 \mu\text{gcm}^{-2}$ and $5.42 \mu\text{gcm}^{-2}$ when compare to DEET result are $0.73 \mu\text{gcm}^{-2}$, $0.53 \mu\text{gcm}^{-2}$ and $0.58 \mu\text{gcm}^{-2}$. The *Strobilanthes Crispus* was potential as alternative of repellent to DEET (N, N-diethyl-meta-toluamide) for controlling *Aedes Aegypti* Mosquito.

Keywords: *Strobilanthes Crispus*, *Aedes Aegypti*, Repllent, Effective Dose, Dengue